U-Model Based Adaptive Tracking Scheme For Unknown MIMO Bilinear Systems

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Summary

Bilinear systems are attractive candidates for many dynamical processes, since they allow a significantly larger class of behaviour than linear systems, yet retain a rich theory which is closely related to the familiar theory of linear systems. A new technique for the control of unknown MIMO bilinear systems is introduced. The scheme is based on the U-model with identification based on Radial Basis Functions neural networks which is known for mapping any nonlinear function. U-Model is a control oriented model used to represent a wide range of non-linear discrete time dynamic plants. The proposed tracking scheme is presented and verified using simulation examples.

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